

Application No. 10/762,729
Reply to Office Action of November 15, 2006

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Amendments to the Claims

This listing of claims will replace all prior versions, and listing, of claims in the application.

Listing of Claims:

1 (Currently amended). An original transport apparatus automatically taking up one or more originals one sheet at a time from a loading tray and transporting said sheet toward a transport path, said apparatus comprising:

- a tray for loading said originals, the tray being inclined downward and having a lower tip region;

- an outer casing member arranged above said lower tip region ;

- a first shaft positioned perpendicular to a direction of sheet transport;

- said outer casing member disposed so as to permit opening and closing about said first shaft ;

- a stopper member positioned in the lower tip region of the tray against which the originals can abut and align prior to transport;

- an engagement piece disposed in the outer casing member on a second shaft positioned perpendicular to the direction of sheet transport so as to permit independent pivotal displacement thereof ;

- the stopper member being positioned on a third shaft, which is positioned perpendicular to the direction of sheet transport, so as to permit pivotal displacement thereof, the stopper member causing a lead edge of said sheet to stop at a prescribed location;

- said engagement piece being capable of engaging with the stopper member;

- a lifting member supported by the outer casing member and attached to the stopping stopper member to permit the stopping stopper member to move vertically in the outer casing member when abutting a sheet; and

- a third shaft at a second end of the arm member, to which the stopper member is pivotally secured;

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wherein, when the outer casing member is closed and the apparatus is in an original takeup standby state, engagement of the stopper member by the engagement piece causes the stopper member to be retained in a position in which the stopper member stops the lead edge of the sheet at the prescribed location, thereby constraining the lead edge at the prescribed location and preventing entry of the sheet into the transport path; and

wherein, when the outer casing member is closed and takeup of the sheet is proceeding, the engagement piece is displaced in pivoting fashion, thereby disengaging engagement between the engagement piece and the stopper member, permitting pivoting displacement of the stopper member and allowing transport of the sheet; and
wherein the lifting member comprises an arm member located and pivotally supported at a first end within the outer casing member.

2. Cancelled.

3 (Currently amended). An original transport apparatus according to claim 1, 2 wherein:

when, during the course of closing the outer casing member from an open state, the stopper member which is engaged with the engagement piece abuts and is pressed upward by the sheet in the tray, thereby causing the second end of the arm member to be displaced upward in pivoting fashion about the first end, in accompaniment to which the stopper member moves upward within the outer casing member.

4 (Currently amended). An original transport apparatus according to claim 1, 2, further comprising a lifting piece integrally connected to the arm member for lifting the engagement piece upward;

wherein, when closing the outer casing member from the open state, the stopper member which is engaged with the engagement piece abuts and is pressed upward by the sheet in the tray, thereby causing the second end of the arm member to be displaced upward in pivoting fashion around the first end, in accompaniment to which the stopper member moves upward, and the lifting piece moves upward so as to further

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lift upward the engagement piece and thereby disengage engagement between the stopper member and the engagement piece.

5 (Withdrawn). An original transport apparatus according to claim 3 or 4 wherein:
at least one of the outer casing member or members is provided with at least one guide component causing at least one of the stopper member or members to be displaced in pivoting fashion such that it is raised upward when at least one of the arm member or members is displaced in pivoting fashion such that it subtends not less than at least one preestablished angle.

6 (Withdrawn). An original transport apparatus according to claim 3 or 4 wherein:
at least one of the outer casing member or members is provided with at least one guide component causing at least one of the stopper member or members to be displaced in pivoting fashion such that it is raised upward when at least one of the arm member or members is displaced in pivoting fashion such that it subtends not less than at least one preestablished angle;

at least one of the guide component or components is at least one guide surface formed at at least one top inside wall region of at least one of the outer casing member or members; and

at least one top region of at least one of the stopper member or members which has moved upward abuts at least one of the guide surface or surfaces and slides therealong so as to cause at least one of the stopper member or members to be displaced in pivoting fashion such that it is raised upward.

7 (Currently amended). An original transport apparatus automatically taking up one or more originals one sheet at a time from a loading tray and transporting said sheet toward a transport path, said apparatus comprising:

a tray for loading said originals, the tray being inclined downward and having a lower tip region;

an outer casing member arranged above said lower tip region;

a first shaft positioned perpendicular to a direction of sheet transport;

said outer casing member disposed so as to permit opening and closing about

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said first shaft ;

a stopper member positioned in the lower tip region of the tray against which the originals can abut and align prior to transport;

an engagement piece disposed in the outer casing member on a second shaft positioned perpendicular to the direction of sheet transport so as to permit independent pivotal displacement thereof ;

the stopper member being positioned on a third shaft, which is positioned perpendicular to the direction of sheet transport, so as to permit pivotal displacement thereof, the stopper member causing a lead edge of said sheet to stop at a prescribed location;

the engagement piece being capable of engaging with the stopper member;

a pickup arm disposed in the outer casing member so as to permit displacement in pivoting fashion about an axis located in a direction perpendicular to the sheet transport direction;

said pickup arm having two ends, a pickup roller for taking up said sheet from the tray being positioned at one end and a thrust member at the other end for engaging the engagement piece;

a lifting member supported by the outer casing member and attached to the stopping-stopper member to permit the stopping-stopper member to move vertically in the outer casing member when abutting a sheet; and

a third shaft at a second end of the arm member, to which the stopper member is pivotally secured;

wherein, when the outer casing member is closed and the apparatus is in an original takeup standby state, the fact that the pickup roller is positioned in an upper region within the outer casing member, thereby preventing engagement of the thrust member with the engagement piece, causes engagement to be retained between the stopper member and the engagement piece, constraining a location of the lead edge of said sheet and preventing entry of said sheet into the transport path; and

wherein, when the outer casing member is closed and takeup of said sheet is proceeding, the pickup arm is displaced downward to cause the pickup roller to move downward and away from the outer casing member so as to not be hidden thereby, and linked with the downward displacement of the pickup arm causing engagement of the

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thrust member with the engagement piece, the engagement piece is displaced in pivoting fashion, thereby disengaging engagement between the engagement piece and the stopper member, permitting pivoting displacement of the stopper member and allowing transport of said sheet; and

wherein the lifting member comprises an arm member located and pivotally supported at a first end within the outer casing member.

8 (Withdrawn). An original transport apparatus according to claim 7 wherein at least one of the pickup arm or arms has:

one or more first standby positions, at which at least one of the pickup arm or arms and at least one of the engagement piece or pieces are not engaged, but at which at least one of the engagement piece or pieces and at least one of the stopper member or members are engaged; and

one or more second standby positions, between at least one of the first standby position or positions and at least one of the position or positions occupied when takeup of at least one of the original or originals is proceeding and at least one of the pickup roller or rollers has moved downward and away from at least one of the outer casing member or members so as to not be hidden thereby, at which at least one of the pickup arm or arms and at least one of the engagement piece or pieces are engaged, but at which at least one of the engagement piece or pieces and at least one of the stopper member or members are disengaged;

one or more retaining members being provided at at least one of the outer casing member or members; and

at least one of the retaining member or members retaining at least one of the pickup arm or arms when at least one of the second standby position or positions is occupied.

9 (Withdrawn). An original transport apparatus according to claim 8 wherein:

at least one of the retaining member or members comprises at least one elastically deformable plate spring provided at at least one inside wall of at least one of the outer casing member or members;

the at least one retaining member abutting at least one pivot tip region of at least

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one of the pickup arm or arms, retaining the at least one pickup arm, when the at least one pickup arm is displaced in pivoting fashion at least as far as at least one of the second standby position or positions.

10 (Withdrawn). An original transport apparatus according to claim 8 wherein:

at least one of the retaining member or members comprises at least one pivot projection provided at at least one basal side, about which pivoting occurs, of at least one of the pickup roller or rollers, and at least one pivot constraining rod provided at at least one apparatus main body and constraining pivoting of at least one of the pivot projection or projections;

at least one of the pivot projection or projections abutting at least one of the pivot constraining rod or rods, retaining the at least one pickup arm, when the at least one pickup arm is displaced in pivoting fashion at least as far as at least one of the second standby position or positions.

11 (Withdrawn). An original transport apparatus according to claim 8 further comprising:

one or more drive control means driving at least one of the pickup arm or arms so as to displace it in pivoting fashion;

at least one of the drive control means for driving at least one of the pickup arm or arms so as to cause it to be displaced in pivoting fashion from at least one of the first standby position or positions to at least one of the second standby position or positions when at least one of the outer casing member or members which had at least immediately prior thereto been in at least one closed state is opened.